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ABSTRACT

This paper addresses considerations inherent in the augmentative and alternative communication (AAC) decision-making process which are important for teachers and related services personnel who participate on Individualized Education Program (IEP) teams for students with disabilities. Specific dimensions discussed include characteristics of the student needing AAC, AAC device characteristics, school issues, and family and cultural issues. Student characteristics identified which may affect AAC device use include performance levels; age; current devices used, past experiences, and preferences; academic and vocational aspirations; student desire for independence; student training needs; and changes over time. Specific factors related to AAC devices considered are: range and availability of AAC devices, ability to enhance levels of performance, real cost, ease of use, comfort, dependability, transportability, longevity and durability, adaptability, compatibility with other devices, opportunity for hands-on experience, and repair considerations. School issues discussed include costs, outside-school usage of devices, protection from theft and damage, and school personnel training needs. Specific family issues addressed include: changes in activities, routines, and resources; effect on interaction patterns; cultural respect; and independence. Finally, the importance of linkages among these various domains is stressed for good decision-making regarding AAC devices. A checklist of questions provides a guide for AAC decision-making. (Contains 33 references.) (DB)

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Augmentative and Alternative Communication Decision-Making Strategies for IEP Teams[1]

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Augmentative and Alternative Communication Decision-Making Strategies for IEP Teams[1]

In developing individualized education programs (IEPs) under P. L. 102-119, the *Individuals with Disabilities Education Act of 1991* (IDEA), related services personnel are increasingly providing assistive technologies to children with disabilities (Parette & VanBiervliet, 1990a,b; Parette, Hofmann, & VanBiervliet, 1994; Parette, Hourcade, & VanBiervliet, 1993). Assistive technology for children with disabilities is "...any item, piece of equipment, or product system, whether acquired commercially, off the shelf, modified, or customized, that is used to increase, maintain, or improve the functional capabilities of children with disabilities" [P. L. 102-119, 34 CFR §303.12(d)(1)].

Improvements in specific functional capabilities, such as communication with others, are frequently identified by parents as goals for children with disabilities during the development of service plans (Parette & Angelo, in press). Generally, parents and others involved in service plan development believe that assistive technologies will result in improved functioning and facilitate the integration of the child into community settings (Parette, in press).

Augmentative and alternative communication (AAC) devices that use synthetic or digitized speech are important assistive technologies which improve the functional communicative capabilities of children with disabilities (Beukelman & Mirenda, 1992; Church & Glennen, 1992; Parette, 1994). When these devices are funded through Part B of IDEA, it is usually subsequent to a comprehensive assessment and evaluation by a team of professionals (McNaughton, 1990; Parette, Hourcade, & VanBiervliet, 1993) which includes related services personnel and families. Unfortunately, many special education personnel involved in these processes have a limited knowledge base regarding factors which impact the AAC decision-making process.

This paper will focus on important considerations inherent in the AAC decision-making process with which teachers and related services personnel should be familiar to effectively participate on IEP teams. Specific dimensions that will be addressed include student, AAC device, service system, family, and cultural issues. This presentation will not focus on highly specific, though important issues, such as icon selection, device programming, and selection of appropriate communication utterances for students.

Student Characteristics

The characteristics of the student are of the utmost importance, and must be given primary consideration (Parette & VanBiervliet, 1990). Specific student characteristics which may affect student acceptance and use of AAC devices are noted in Figure 1.

[Insert Figure 1 about here]

Performance levels. Determination of a student's current capabilities in various developmental areas provides a foundation for determining future AAC (e.g., sitting without support, using two hands to perform academic tasks, communication strategies currently used). AAC devices place varying *cognitive* demands on students to use them efficiently (e.g., use of a device that requires one key depression versus one that requires many keys). The greater the sophistication, or use requirements of the AAC device, the greater the cognitive demands placed on the student. Of particular importance are the *social interaction* and *cooperative learning demands* placed on the student. For example, if a student has not learned social communication and cooperative turntaking skills, great difficulty may be experienced in appropriately using devices in contexts where these skills are required. Similarly, some devices may be easily damaged and may not be appropriate for students who have poor *adaptive behavior skills* and have a tendency to be destructive with devices. In such instances, specific device features

should be given greater attention (e.g., durability, safety characteristics, etc.). The presence of a *sensory disability* will also have a direct influence on the types of assistive technology considered for the student. For example, a student with a visual impairment will require devices that do not require vision for effective use.

Age. AAC devices should be selected which are developmentally appropriate for a student's chronological level. For example, Liberator may not be the most appropriate device for a lower functioning student.

Current devices used, past experiences, and preferences. AAC strategies which are currently used at home, but not at school, and devices previously used at school should be considered by effective team members. Family participants as well as teachers and other school personnel who have worked with the student previously may have valuable information regarding past successes in using or making modifications to specific devices (Parette et al., 1993; Scherer & McKee, 1989; Zola, 1982). Student preferences for AAC devices should be given primary consideration because such preferences are frequently based on past successful experiences. Questions that might be asked by team members which address student characteristics are presented in Figure 1.

Academic and vocational aspirations. Effective team members should anticipate the child's future academic and vocational needs (e.g., developing word processing skills versus concentration on handwriting) when making decisions about AAC devices for students with disabilities. This is particularly important for older students who are entering transition programs. Team members should also recognize that passage of P. L. 101-336, the *Americans with Disabilities Act of 1990*, has resulted in greater employment opportunities for persons with mental retardation and developmental disabilities nationally.

Student desire for independence. Assistive technology has the potential to enhance the functional abilities of students with disabilities, resulting in greater

independence. Students who have a sense of inner direction, or the motivation to exercise control over their environment, will have needs for different types of AAC devices than their peers who have less motivation.

Student training needs. Some AAC devices, particularly devices which are more sophisticated or unfamiliar to students, will require varying amounts of training to use effectively (Galvin, n.d. a, b; Parette & VanBiervliet, 1990a). This is particularly true for students who have motor, cognitive, social, behavioral, or sensory disabilities (Glennen, 1992).

Changes over time. Many of the student considerations noted above may change over time due to peer influences, family and academic experiences, cultural, and other factors. As a student has more experiences with AAC devices (and subsequent failures and successes), periodic changes in student preferences may be exhibited, requiring the IEP team to examine new AAC solutions to most effectively meet student needs.

AAC Device Characteristics

Once relevant characteristics of the student have been identified and considered, the features of AAC devices being considered for the student may be addressed. Goals for the use of devices should emerge as a result of the assessment of student needs, desires, and capabilities. Specific factors which should be considered include the following.

Range and availability of AAC devices. There are often many AAC devices which may be appropriate to help students with disabilities benefit from special education programming. Effective IEP team members should consider as many devices as possible which might potentially help the student achieve identified goals. Catalogues from vendors should be examined and, if appropriate, vendor representatives may be contacted to provide demonstrations and hands-on opportunities with devices. This will allow team members to effectively ask

questions regarding specific device features that can assist in decision-making (e.g., How much memory does it have? What is its repair record? Is a loaner available if it has to be sent to your faculty for a more than a few weeks?). Team members should also make inquiries regarding the *availability* of assistive devices. Devices purchased from AAC manufacturers may not always be in stock, and/or require lengthy periods of time to manufacture resulting in lengthy delays in delivery.

Ability to enhance levels of performance. Once a student's performance levels are known by the IEP team, long-term goals and objectives will naturally emerge from this information through team decision-making. While many AAC devices are designed to perform specific communication functions, other devices may have multiple uses across tasks and settings. Sometimes AAC devices are accompanied by product manuals which provide documentation regarding functions and limitations. If documentation is not available, effective IEP team members may need to directly examine devices being considered. If necessary, inquiries may be made to the manufacturer or to students with disabilities who have used the device in the past. Information which is obtained from previous users is especially important, since they sometimes report problems that have been unnoticed by vendors.

Real cost. The cost of AAC devices is frequently identified as a primary barrier for students with disabilities (Parker, Buckley, Truesdell, Riggio, Collins, & Boardman, 1990; Uslan, 1992). The initial and ongoing costs of the technology are also frequent concerns expressed by school administrative personnel. Of particular importance to the IEP team is the *real cost* of the AAC device, including costs associated with batteries, parts, maintenance requirements, and additional assistive devices that may be required to operate the device being considered. If these hidden expenses are explored initially, they may be written into the child's IEP as an assistive technology service, and the school will be responsible for paying for the

expenses.

Ease of use. The simplicity of operation of an AAC device is an important consideration. Often schools purchase complex devices which require tremendous training time investments by both teachers and students. This can result in reluctance on the part of teachers to learn how to use such devices. Similarly, if the cognitive or motoric demands of the AAC device exceed the student's performance levels, the student may be resistant to using the device, resulting in technology abandonment (Batavia et al., n.d.; Phillips, n.d.).

Comfort. Careful thought must be given to the physical demands placed on the student to operate or use any AAC device, and the level of comfort experienced by the student during use. Some devices may be used with great ease and comfort, while other can only be used for short periods before the student will become tired.

Dependability. When resources are expended for AAC devices, a major concern is whether the product is dependable. This includes the extent to which (a) device performance matches manufacturer claims, and (b) the device meets the needs of students (Galvin, n.d. a, b). Effective IEP team members must examine the ability of devices to provide performance or evaluation data necessary for the documentatión of student progress. If information regarding the device dependability is not available, team members may contact persons with disabilities who have used the AAC device and obtain feedback regarding the user's perspective.

Transportability. It is also important that team members consider the transportability of a particular device. Sometimes bulky or heavy AAC devices are chosen for students who may not have the strength to carry them around in the environment (Carey & Sale, 1995). This places responsibility on adults working with the student to ensure the availability of the assistive technology device for academic tasks. Smaller devices may be cumbersome for a child to transport,

requiring a carrying case.

Longevity and durability. Since fiscal resources are often limited, it may be desirable to choose AAC devices which have utility for a number of years. Product manuals should be examined for information regarding longevity and durability; if unavailable, direct contact with the manufacturer may be helpful.

Adaptability. Since many technologies will be used for a long period of time, adaptability to meet the changing needs of children over time must be carefully considered. AAC devices which may be used across many educationally-related tasks may be preferable (and more cost-effective) to those which perform only one function. However, some devices are designed to perform a specific function and cannot be adapted. For example, an augmentative and alternative communication (AAC) device having expandable memory (thus allowing new vocabulary to be added over time) might be more desirable than an AAC device with limited vocabulary capabilities which could only be used one year. Before an assistive technology device is purchased, effective IEP team members might weigh potential modifications needed for the device over time against available fiscal and human resources (e.g, school personnel, community volunteers) necessary to make needed modifications.

Compatibility with other devices. Related to hidden costs is the extent to which a device being considered can be used with other assistive technology. Team members should give thought to both the student's *present* and *future* needs when examining the ability of the technology to be used with other devices.

Opportunity for hands-on experience. Effective team members should attempt to insure that the student has an opportunity to use an assistive technology device prior to purchase (Galvin & Toonstra, n.d.; Parette & VanBiervliet, 1990a). Many AAC vendors allow a trial usage period prior to billing, and many will provide demonstrations on request.

Repair considerations. Since some AAC assistive devices require lengthy or frequent repair intervals (Batavia & Hammer, 1990; Parette & VanBiervliet, 1990a; Phillips, n.d.), effective team members should request information from vendors about product testing, reliability and repair records for devices. Persons in the community who use AAC devices that are being considered should be contacted to obtain a user perspective regarding repair issues. Team members should also ask vendors whether the student will have a backup or "loaner" device provided by the manufacturer while the device is being repaired and whether a warranty is available. If a warranty is not available, team members may identify (a) local shops or companies that can provide parts or repair damaged devices, or (b) students, parents, and school personnel who might have the tools and skills to repair assistive technology devices.

School Issues

The third area of concern which must be addressed by the IEP team includes factors directly related to the school. Several key issues are typically of great concern to many school districts, and are discussed in the following section.

Cost. The reality of limited funding presents a major challenge to the IEP team, and underscores the effective practice of *identifying appropriate technologies* for students. Often, inexpensive assistive devices or those which can be modified, customized, or made by the school (using available resources) at minimal cost are appropriate for many students (Parette & VanBiervliet, 1990a). However, this in no way circumvents the responsibility of the school to purchase an expensive device that is identified as *the only means* to assist a student to benefit from special education. Team members may consider *leasing* as an alternative to purchasing expensive devices, thus minimizing hidden expenses (Appartek, Inc., n.d.; Hofmann, 1994; Parnes, 1988). Another effective practice solution is to utilize community resources as an alternative funding source when severe fiscal resource

limitations are present (Parette, Murdick, & Gartin, 1996).

Outside-school usage of devices. Sometimes AAC devices are used only in the school environment, and the student is not allowed to take them home (Parette & VanBiervliet, 1990a; Prentke Romich, Inc., 1989). If family members feel that it is important for a device to be used at home, or if teachers feel that certain skills taught in school must be practiced in the home, IEP objectives should be written to address this need. For example, an AAC device used by a student to communicate with peers at school might also be used to discuss homework problems with the student's parents, or to practice spelling and grammar skills.

Protection from theft and damage. If a decision is made to allow a child to take a device home, liability issues related to theft or damage should be considered (Parette & VanBiervliet, 1990a). While many school systems have insurance policies which cover school property while it remains on school premises, these policies may not cover devices once students take them home. An examination of the existing school policy should be made to determine whether devices are covered under such circumstances; if not, it may be that a rider could be negotiated between the school and insurer to replace or repair the student's device in the event of theft or damage.

School personnel training needs. Effective IEP team members should not ignore the necessity of training personnel how to use AAC devices efficiently (Parette, 1991; VanBiervliet & Parette, 1989). While many AAC devices can easily be used without training, more sophisticated devices may require considerable staff training commitments. Training is an assistive technology service that can be written into the IEP.

Family and Cultural Issues

For full implementation of Part B of IDEA to occur, an equitable system of service delivery must be developed nationally. As previously discussed, the system

can be influenced by many factors: parental preference, student characteristics, financial resources, ethnicity, age of the child, geographic location, professional preference and service availability (Hanft & Striffler, 1994; Sontag & Schacht, 1993).

IEP team decisions regarding AAC are generally made after student, technology, and school factors have been considered. School personnel may have a tendency to focus on how the AAC device can help a student in the classroom and other educational settings, e.g., shopping trips to the grocery store. Family members, on the other hand, often want devices that can be used both at school and home. For example, an AAC device may be purchased if it can help a student to communicate at school. Family members may need to be prepared to show IEP team members how an assistive technology they know will help the student at home will also help the child to benefit from special education services.

In a recent national study of states funded under P. L. 100-407, the *Technology-Related Assistance for Individuals with Disabilities Act* (Parette, 1995a), it was found that less consideration is given to family issues than AAC device, child, and service system factors during AAC assessment and prescriptive processes. An effective practice is for IEP team members to develop an approach which recognizes and considers family issues, since parents and family members do not always share the same concerns or preferences for assistive technology as school personnel (Beukelman & Mirenda, 1992). Specific family issues include the following.

Changes in activities, routines, and resources. If service plan implementation is to be effective, family values, routines, and resources should be considered by IEP members (Angelo, 1994; Parette, in press). This is particularly important when devices are identified for use both at school and in the home. Higher levels of stress may occur if (a) increased caregiving demands are placed on families, (b) great amounts of time are required for family members to provide school-recommended interventions, and (c) specific AAC devices are provided which require family time

and resource commitments. Specific questions should be posed to family members in an effort to understand how an AAC device might affect the family. Such sensitivity will reflect respect for the family and may encourage greater family participation in the child's educational program.

Effect on interaction patterns. When AAC devices are introduced in the home setting, unexpected outcomes may sometimes result. For example, if a mother has to spend large amounts of time learning how to use a sophisticated device, less time could be available for routine household tasks and interaction time with other family members may decline. The resulting heightened levels of stress among all family members could culminate in a range of family difficulties (e.g., arguments, decrease in communication among family members, resentments). When the IEP team is aware that introduction of an assistive technology device might require certain changes in family routines, probing questions should be asked: "If we allow Johnny to take his AAC device home, will you be able to come to school a day a week during the first few weeks of school to learn how to use the device? If so, will this affect your family in some important way? What will your husband/wife think? Will your children understand?" Such questions can provide valuable insights into the potential impact of assistive technology on the family.

Cultural respect. Professionals recognize the importance of sensitivity to linguistic and cultural backgrounds of families (Beckman, Robinson, Rosenberg, & Filer, 1994; Sontag & Schacht, 1994). In the dominant American culture, great emphasis is placed on (a) individualism and privacy; (b) equality; (c) informality; (d) the future; (e) human goodness; (f) time; (g) action, work, achievement, individualism; and (h) directness and assertiveness. Such values may not be perceived with the same degree of urgency or importance by families from other cultures. In certain cultures, extended family members have roles, responsibilities and restrictions that are dictated by their culture which may markedly impact how

assistive technology is perceived and used by family members (Miller & Abudarham, 1984; Parette, 1995b). Studies of family interaction patterns and response to a range of school-initiated interventions suggest that special education services may be perceived and used differently across cultures (Parette, in press). Failure to consider cultural values may result in the provision of a device that is neither wanted nor used by the student and family in the home and community environments. Specific culture-sensitive questions related to AAC decision-making are presented in Figure 1. Other culturally-lined factors that should be considered by the IEP team include (a) acculturation, (b) life experiences, (c) social influences, and (d) developmental expectations (Parette, 1996).

Independence. IEP team members should view the provision of an assistive device from the perspective of potentially increased student independence. This would include consideration of improvement in the student's living condition, ability to perform important tasks in the classroom and other environmental settings, and the student's ability to be independent. If the device does not facilitate improvement in these areas, a different assistive technology should be considered.

Linkages Among Domains

In the process of identifying appropriate AAC devices for any student with a disability, team members should incorporate examination of the linkages between the various domains. Predicting the nature of changes expected in specified domains, and timelines relating to the appearance of anticipated outcomes, are especially helpful. Face-to-face discussions with family members are important to identify specific issues for each domain and timelines relating to the appearance of anticipated outcomes. For example, if an expensive AAC device is provided to a student, it would be important to project the length of time that would be required for the student and others to use the device in functional settings (Parette & Brotherson, 1994). This would simultaneously require that (a) thought be given to

the nature, extent, and timing of training that would be required for family members, the student, and others in the community; and (b) the impact of the training requirements on changes in family routines. This may mean that professionals would work with families across multiple domains to obtain baseline information. Family members could also be questioned regarding their perceptions of the impact of assistive devices (e.g, "What do you think will happen if ___?" or "How will this device get from home to school?" or "What will it cost for you to modify this at home?"). Brainstorming questions can result in useful information for planning overall family support services. Otherwise, the planning which is conducted may be more hopeful than helpful and not based on the diversity and realities of family life (Parette & Brotherson, in press).

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Figure 1. **Questions relevant to AAC decision-making by team members.**

Child Issues

- Have I individualized the AAC assessment process for the child?
- Have I identified strategies for involving the child in the AAC assessment process?
- Do I have adequate information about the child's strengths and needs?
- Have I observed the child in a variety of environmental settings?
- Do I conduct AAC assessments in an environment familiar to the child?
- Do I understand the child's expectations for communication?
- Have I allowed for the child to indicate preferences for an AAC device?

AAC Device Issues

- Have I examined existing information databases to identify a range of AAC devices appropriate for the child?
- Am I aware of the strengths and weaknesses of a particular AAC device being considered?
- Do operational demands and features of the AAC device match the child's characteristics and needs?
- Is the device safe and reliable?
- Are hidden costs associated with maintenance of the device over time?

Service System Issues

- Do resources exist for purchase of the AAC device?
- Will training be required for school personel to learn to use the device effectively across educational settings?
- Is insurance available to protect the device from theft and damage?

Family Issues

- Have I asked family members what their concerns are regarding their child?
- Am I aware of what the family expects out of me in the AAC assessment process?
- Have I taken the time to develop a trusting relationship with the family before starting the AAC assessment procedures?
- Have I identified strategies for involving the family in the AAC assessment process?
- Am I flexible when meeting with family members?
- Do I provide assistance to help the family members when filling out forms necessary for AAC assessment?
- Have I informed family members of their rights in the AAC assessment process?
- Have I determined whether the family is willing to receive formal AAC services?
- Have I identified past experiences in child or family use of assistive technology which could influence their current perception and use of AAC devices?

Figure 1 (cont.). **Questions relevant to AAC decision-making by team members.**

Cultural Issues

- Do I understand the family's values, beliefs, customs and traditions?
- Do I understand the family's attitude regarding disabilities?
- Does the family accept the idea of assistive technology as a tool to help their child?
- Have I identified important social influences which might affect children or family perception and use of AAC devices?
- Do I understand how the family feels about making direct contact with professionals involved in AAC decision-making?
- Have I included the extended family in the AAC assessment process?

Source: Parette, H. P., & Marr, D. D. (1996). *Assisting children and families who use augmentative and alternative communication (AAC) devices: Best practices for school counselors.* Manuscript submitted for publication.